# ENTOMOLOGICAL NEWS

**FEBRUARY 1961**

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# ENTOMOLOGICAL NEWS

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## A Catalogue of the Schendylinae of North America including Mexico, with a Generic Key and Proposal of a New Simoporus [1] (Chilopoda: Geophilomorpha: Schendylinae)

By R. E. CRABILL, JR., Smithsonian Institution, Washington, D. C.

As I have suggested in a previous paper, the chilopod fauna of the montane southeastern United States appears, on the one hand, to be linked with the faunas of northwestern America and eastern Asia, and, on the other hand, with those of the southwestern United States and lands to the south (1958, p. 153). It also has its own apparently distinctive faunal elements.

The idea was advanced with particular reference to the centipedes of the middle and southern Appalachian Mountains, but evidently it may also be true at least of some part of the chilopod fauna inhabiting the Ozark Plateau, a sizeable and very ancient highland just west of the great Mississippi Embayment that may have served as an elevated route of dispersal into the Midwest from the southwestern part of the continent and, in some instances, even from the Mexican Plateau.[2]

[1] This study was undertaken with the aid of a grant from the National Science Foundation.

[2] Since we are dealing with animals of low vagility and, like plants, restricted in distribution by often highly specialized edaphic and environmental moisture requirements, it is of particular interest to note that there is a number of flowering plants whose ranges extend to or toward Texas, or through Texas into Mexico. For particular information on Ozark Plateau plant names, distributions, and possible origins, see Palmer and Steyermark, 1935, especially pp. 414–417.

Through the continuing kindness of Dr. Nell B. Causey, a prominent authority on diplopods and an energetic collector, I have been able recently to study several small but valuable collections of Arkansas chilopods. This material has facilitated the accumulation of a significant body of heretofore unknown information about this poorly-known but geographically meaningful fauna. Range extensions with the discovery of many new localities, clarification of old and often questionable species identities, the discovery of new forms, important new synonymizations and combinations, new variational data—all have resulted from the study of the Causey specimens; much of this information is scheduled to appear in several papers which are in preparation at the time of this writing.

From the standpoint of distribution and faunal affinity, several of the Causey centipedes are of particular interest: a himantariid, *Stenophilus grenadae* (Chamberlin),[3] previously known from one Mississippi specimen whose original description for many years precluded its disposition within the generic system; a rare sogonid, *Sogona poretha* (Chamberlin),[4] otherwise represented only by the typical series from Louisiana; a chilenophiline, *Watophilus* (*Parawatophilus*) *dolichocephalus* (Gunthorp), known only from the Kansan types; a dignathodontid, *Tomotaenia* (*Korynia*) *urania* Crabill, known only from Missouri. Each is a member either of a higher category or of a genus that is especially characteristic of the West and Southwest, or of the Southwest and Mexico. To this growing list may now be added an additional striking example, a new schendyline, the third-known member of its genus, *Simoporus arcanus*.

The schendyline[5] genus *Simorporus* belongs to that ensemble

[3] New combination. The species was originally referred to *Haplophilus* (Chamb., 1912b, p. 435).

[4] New combination. Originally placed in a new monotypic geophilid genus, *Nannocrix* (Chamberlin, 1912b, p. 432), *poretha* here is considered congeneric with the type-species of *Sogona*, *S. minima* Chamberlin; hence *Nannocrix* is a junior subjective synonym of *Sogona*.

[5] The present higher categorical interpretation follows that of Attems who considered Schendylidae to be divisible into two subfamilies, Schendylinae and Ballophilinae. Chamberlin, on the contrary, accords to each of these subfamilies full family rank.

of predominantly tropical and subtropical genera [6] characterized by possession of the following features in combination: each coxopleuron has 1, 2, or no gland openings; the second maxillary claws are pectinate; the ultimate leg pretarsi are present and unguiform. In America south through Mexico these genera are *Mexiconyx, Morunguis, Nesonyx, Parunguis, Nyctunguis,* and *Simoporus.* (See appended catalogue and notes on *Holitys.*)

Originally described from Texas, *Simorporus* was next recorded from northeastern Mexico: now, for the first time, its range may be extended farther eastward and well northward to the general area of the Boston Mountains in northwestern Arkansas. The evidence seems to indicate a fairly extensive pattern of dispersal, one rather reminescent of that of the Sogonidae whose more northerly American distribution, broadly speaking, ranges from Mexico through the Gulf States with incursions into the midwestern and southeastern United States.

The new species, *arcanus,* is apparently most like the Mexican *koestneri* Chamberlin, from which it may be distinguished by the criteria presented in the underlying key to the known species.

*Key to the Species of Simoporus*

1a. Pedal segments numbering 55–61. Mandibular teeth not fused into distinct dentate lamellae (Texas) ..... **texanus** Chamberlin

1b. Pedal segments numbering 39 or 41. Some mandibular teeth (at least in *arcanus*) fused into distinct and typical dentate lamellae ..... 2

2a. Prosternal margin antero-centrally with a pair of flat and small but distinct denticles. 1st maxillae with a pair of distinct telopodite lappets. Male types with 39 pairs of legs (Arkansas) ..... **arcanus,** new species

2b. Prosternal margin antero-centrally without denticles. 1st maxillary telopodites reportedly without lappets (i.e., like those of Verhoeff's figure of **dampfi,** q.v. in catalogue of species). Male types with 41 pairs of legs (Mexico) ..... **koestneri** Chamberlin

[6] They are tropical or subtropical from the standpoint of their latitudinal distribution. Many are known from high elevations and are probably cold-adapted.

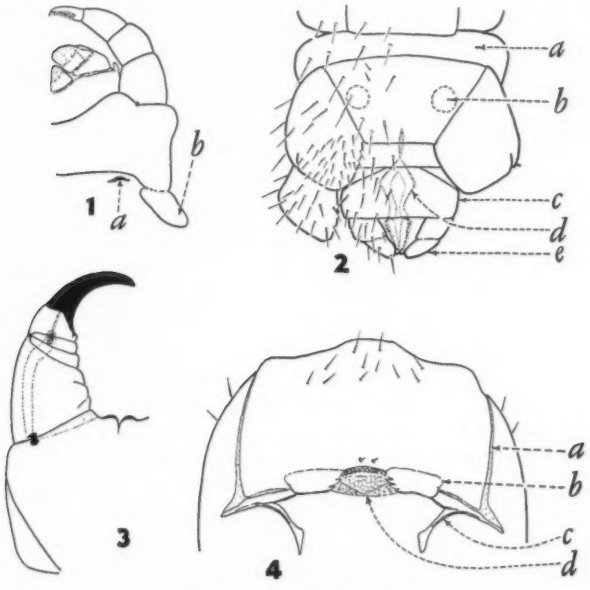
**Simoporus arcanus,** new species

Holotype: ♂. ARKANSAS: Washington Co., 4 miles west of Farmington. June 16, 1950. Nell B. Causey, leg. U. S. National Museum Myriapod collection 2598.

INTRODUCTORY. Length, 10 mm. Pedal segments, 39. Body shape: Very slightly attenuate anteriorly, more strongly so posteriorly; widest at $\frac{2}{3}$ the antero-posterior length. Color, light brownish-yellow throughout.

ANTENNAE. Length (expanded in Hoyer's mountant), 1.34 mm. Shape: Each article except the first longer than wide; as a whole, filiform; ultimate article equal in length to the preceding two taken together. Vestiture: Sparser on the first 4 or 5, thereafter denser and individually shorter. Ultimate article sensilla: On outer surface only; about a dozen robust, flat and hyaline modified setae arising from a slight ovate depression. CEPHALIC PLATE. Length, 0.38 mm, greatest width, 0.34 mm. Shape: Sides strongly curved; rear margin slightly concave to reveal full width of prebasal plate; dorsally somewhat domed. Coarsely areolate; setae very spare and short. Frontal suture absent; posterior divergent sulci very shallow and weak, each is broad. CLYPEUS (fig. 4). Paraclypeal sutures distinct and complete. Clypeal surface coarsely areolate; without smooth areas (plagulae), without clypeal areas anterocentrally. Setae: postantennals in one series, 1 + 1; posterior geminates (prelabrals), 1 + 1; midclypeals, in two series, 2+ 2, 3 + 3. Buccae: Each coarsely areolate; transbuccal sutures absent; setae absent. LABRUM (fig. 4). Intimately fused with clypeus, not separated from it by sutures. Central embayment broad, even, deep, the teeth numbering about 18, lateral teeth longer and thinner, the more central teeth shorter and more robust, the latter distinctly separated from each other, not fused or forming a crenulate margin. MANDIBLES. Each with two weak but distinct dentate lamellae plus a row of simple hyaline individually discrete teeth. Lamellar teeth of right mandible, 3,3; of the left, 3,4. FIRST MAXILLAE (fig. 1). Coxosternum broad, medially undivided, not suturate; without coxosternal lappets; medial lobes discrete. Each telopodite distinctly biarticulate, with

a prominent but concealed lappet. SECOND MAXILLAE (fig. 1). Isthmus very broad, not suturate, coarsely and strongly areolate. Postmaxillary sclerites attached weakly, terminal in position. Telopodite basally bicondylic; terminal claw broadly spoon-shaped, excavate, each edge with a row of long, delicate pectinae.




*Simoporus arcanus* new species

1. First and second maxillae. (Ventral aspect; left halves.) Setae deleted. a = metameric pore opening. b = postmaxillary sclerite.

2. Ultimate pedal and postpedal segments. (Ventral aspect.) Setae of right side shown. a = ultimate pedal presternite. b = ultimate pedal sternite covering concealed coxopleural pore (in dashed line). c = genital sternite. d = (in stipple) male intromittent apparatus. e = left gonopod.

3. Prosternum and right prehensor. (Ventral aspect; right side.) Setae deleted. Poison gland in dashed lines, poison calyx and its efferent canal shown in stipple.

4. Clypeus, labrum, buccae. (Ventral aspect.) Setae shown. a = left paraclypeal suture. b = left labral sidepiece. c = left labral fultura, posterior arm. d = epipharynx.

PROSTERNUM (fig. 3). Anterior margin centrally with a pair of very low, rather broad, but distinct and pigmented denticles. Subcondylic sclerotic lines absent. Pleuroprosternal sutures prominent, complete to antero-lateral margin. PREHENSORS (fig. 3). When flexed, not surpassing anterior margin of head. No article with denticles. Tarsungular dorsal and ventral edges not serrulate; division between ungular and tarsal portion indicated by a weak but nearly complete vestigial suture. Poison calyx ovoid in outline, with relatively long, blunt digitiform appendices; situated in tibioid. Poison gland long and narrow, extending out of the trochanteroprefemur and well into the adjacent somite.

TERGITES. Basal plate anteriorly concave, revealing prebasal plate. Each tergite except basal plate and last pedal tergite with a pair of deep, complete sulci. Coarsely areolate and very sparsely setose. SPIRACLES. Those of first 3–5 segments subcircular; remaining spiracles essentially circular. STERNITES. Each but the first and last much longer than wide; coarsely areolate and very sparsely setose; without apparent sulci; without typical *carpophagus*-structures. Intercalary sternites undivided midlongitudinally; those on rear $\frac{2}{3}$'s of body very long front-to-back, bandlike. Porefields: Beginning on pedal sternite 2 and extending through 15; each is undivided and subcircular to slightly antero-posteriorly oval in shape; each field is slightly post-central in position and is very slightly raised.

ULTIMATE PEDAL SEGMENT (fig. 2). Pretergite separated from its pleurites by a distinct suture on each side. Tergite much broader than long; sides straight and convergent; rear margin essentially truncate. Presternite antero-posteriorly very long; bandlike, centrally undivided, not suturate. Sternite much wider than long; sides straight and convergent; rear margin essentially straight. Coxopleuron: With one circular, porelike opening concealed completely beneath the sternite; this pore communicating with a tubular chamber which is part of a large glandular structure of the homogenous type. Ultimate leg: About 25% longer than the penult; moderately inflated; tarsus consisting of two articles; pretarsus is large and distinctly ungui-

form; the two tarsal articles abruptly thinner than the more proximal articles; trochanter through tibia clothed subdensely with short, bristlelike setae, the tarsus with longer and fewer setae; dorsally all articles sparsely clothed with long stiff setae.

Postpedal Segments (fig. 2). Gonopod biarticulate but very indistinctly so; long and narrow. Terminal pores absent.

Paratype: ♂. See collection data for holotype. The only other specimen is virtually identical with the holotype. It differs only in being somewhat lighter in color.

## Key to the Schendyline Genera of North America Including Mexico

1a. Each coxopleuron with more than 2 gland openings; the openings are true pores and are normally numerous. Ultimate pretarsus is unguiform (*Escaryus, Apunguis*).....2

1b. Each coxopleuron with 1 or 2, or with no gland openings; the openings are either typical pores, being small and essentially round, or they are larger and cleft- or slit-like apertures. Ultimate pretarsus, when present, is either unguiform or tuberculate.....3

2a. Second maxillary claw is pectinate..... .....**Escaryus** Cook and Collins

2b. Second maxillary claw is smooth....**Apunguis** Chamberlin

3a. Each coxopleuron without a gland opening. Second maxillary claw is pectinate. Ultimate pretarsus is present and unguiform.....**Nesonyx** Chamberlin

3b. Each coxopleuron has 1 gland opening; this is often concealed and usually pore-like. Second maxillary claw is pectinate. Ultimate pretarsus is present and unguiform (*Simoporus, Mexiconyx, Morunguis*).....4

3c. Each coxopleuron has 2 gland openings. Second maxillary claw is pectinate or smooth. Ultimate pretarsus, when present, is unguiform or tuberculate (*Parunguis, Serrunguis, Nyctunguis, Schendyla, Pectiniunguis*).....6

4a. Ventral porefields are absent on all pedal sternites..... .....**Morunguis** Chamberlin

4b. Ventral porefields are present on at least the more anterior pedal sternites (but they may occur on most or all sternites).....5

5a. Prehensors when flexed extend far beyond the anterior head margin.....**Mexiconyx** Chamberlin

5b. Prehensors when flexed do not extend beyond the anterior head margin and may fall short of it.....
.....**Simoporus** Chamberlin
6a. Ventral porefields absent on all pedal sternites (*Serrunguis, Parunguis*).....7
6b. Ventral porefields present on most or all, or at least on the more anterior pedal sternites (*Nyctunguis, Schendyla, Pectiniunguis*).....8
7a. Second maxillary claws are pectinate. Ultimate pretarsus is small, weak, and unguiform. Prehensorial blade edges apparently not serrulate.....**Parunguis** Chamberlin
7b. Second maxillary claws are smooth. Ultimate pretarsus is slender and tuberculate. Prehensorial blade edges are serrulate.....**Serrunguis** Chamberlin
8a. Second maxillary claws are smooth. Ultimate pretarsus is absent.....**Schendyla** Bergsöe and Meinert
8b. Second maxillary claws are pectinate. Ultimate pretarsus is absent, or minute and vestigial, or present and unguiform.....9
9a. Ultimate pretarsus is present and unguiform. Coxopleural gland pits are homogenous, i.e., lack constituent gland canals.....**Nyctunguis** Chamberlin
9b. Ultimate pretarsus is absent or present; if present, then it is vestigial and essentially tuberculate. Coxopleural gland pits are heterogenous, i.e., are composed of constituent glands and large gland canals.....**Pectiniunguis** Bollman

(*To be continued*)

## Nomenclature Notice

All comments should be marked with the Commission's number and sent in duplicate to W. E. China, British Museum (Natural History), Cromwell Road, London, S.W.7, England, before June 5, 1961. Comments received early enough will be published in the Bulletin. For details see Bull. Zool. Nomencl. 18 (1–3).

Suppression of 56 generic names published by Meigen, 1800 (Diptera) (Z.N.(S.) 191). Validation of the generic name **Myelophilus** Eichoff, 1878 (Coleoptera) (Z.N.(S.) 467). Designation of a type-species for **Euceraphis** Walker, 1870 (Hemiptera) (Z.N.(S.) 1363). Validation of the generic name **Perla** Geoffroy, 1762 (Plecoptera) (Z.N.(S.) 1451).

# Studies in the Genus Ochlodes Scudder. II. The Type Material of the North American Species (Lepidoptera: Hesperiidae)

By J. W. TILDEN, San Jose State College, San Jose, California

The first paper of this series dealt with the distribution of *Ochlodes yuma* (Edw.). This paper deals with the location of type specimens of the North American species of the genus.

The names proposed by W. H. Edwards do not have designated holotypes, since the practice of designating individual specimens as holotypes was not general at that time. Rather, whatever specimens were before Edwards at the time he penned his descriptions, were all considered equal, that is, cotypes or syntypes. If there existed but a single unique specimen it is automatically the holotype under existing rules. Where two or more specimens are known to exist, it seems desirable to designate one of these as the lectotype of the name.

It has been called to my attention by F. M. Brown, that C. L. Remington (1947) published an excerpt from the minutes of the Cambridge Entomological Club, as follows: a "collection of butterflies, containing the types of seventy rare species of Hesperia" had been on board the ship Pomerania when she was lost. One may postulate that this unfortunate event is responsible at least in part for the difficulty encountered in tracing and recognizing some of the specimens upon which W. H. Edwards based his names.

The names that in the Checklist of Lepidoptera of Canada and the United States of America (McDunnough, 1938) are considered as belonging to the genus *Ochlodes* Scudder follow:

*morrisoni* Edw.
*sylvanoides* Bdv.
*pratinicola* Bdv.
*nemorum* Bdv.
*agricola* Bdv.
*napa* Edw.
*yreka* Edw.
*verus* Edw.
*milo* Edw.
*snowi* Edw.
*yuma* Edw.
*scudderi* Skin.
*francisca* Ploetz

To these, Evans (1955) has added another:

*amanda* Ploetz

An attempt has been made to locate the type material of each name and to discuss its status, but this paper is not concerned with the ascertaining of the number of valid species or subspecies represented by these names. This must wait on further study.

**Pamphila morrisoni** Edw. 1878 was described "from several examples taken by Mr. Morrison in Southern Colorado." *Morrisoni* was included in *Pamphila* (*Hesperia* in the current sense), by Lindsey (1921). In 1931, Lindsey, Bell and Williams removed it to *Ochlodes*. Evans (*tom. cit.*, p. 317) erected for its reception the monobasic genus *Stinga*. Since *morrisoni* has been somewhat anomalous in the genera in which it has previously been included, perhaps the solution offered by Evans is as good as any.

The types of the Boisduval names, *sylvanoides, agricola, nemorum* and *pratincola,* are deposited in the British Museum (Natural History) in London, England, whence they came through the purchase in 1931 of portions of the Oberthur collection. Information on this point, and citation of the type specimens under each name, are presented by Evans (*tom cit.*).

Boisduval's description of **Hesperia sylvanoides,** 1852, includes the description of both sexes. No definite locality nor number of specimens appears in the description. But his comment, "Assez commune en Mai," is puzzling, in view of the generally accepted use of this name for a late-flying insect.

**Hesperia agricola** Bdv. 1852 was described from the male only. Boisduval writes "Je ne connais pas la femelle." The description gives no clue as to the exact locality nor to the number of males at hand. The above remarks apply equally well to the description of **Hesperia nemorum** Bdv. 1852, of which he says "Nous n'avons pas vu la Femelle." **Hesperia pratincola** Bdv. 1852 was described from both sexes, but again without exact locality nor number of specimens. However, in view of Boisduval's practice of designating holotypes, there seems to be

no reason to doubt the authenticity or proper designation of any of his types of American *Ochlodes.*

Concerning the names proposed by W. H. Edwards, more confusion exists. Specimens that may be regarded as most likely to include type material of these names, exist among the collections of the Carnegie Museum, Pittsburgh, Pennsylvania. Correspondence with curators of other museums has failed to reveal specimens equally deserving of consideration in this respect, for the names *napa, yreka, milo* and *verus.* Each will be dealt with below.

**Hesperia napa** Edw. 1864 was described from specimens "Taken by Mr. Ridings at Empire City, Colorado Territory." Since both sexes are described, Edwards had before him at least a pair, but the number of specimens is not stated. Correspondence has failed to reveal specimens known definitely to have been collected by Ridings. Dr. Clench informs me that there are in the Carnegie Museum, four specimens representing the name *napa* Edw., two males and two females. The Ridings collection supposedly came in its entirety to the Academy of Natural Sciences of Philadelphia, but Mr. James A. G. Rehn states (*in litt.*) that "what is certain is that in our series [of *napa* Edw.] there is no material which we can definitely say came as part of the Ridings collection." Mr. Rehn considers it probable that this material was not returned to Ridings by Edwards. Since a great part of the Edwards collection went to the Carnegie Museum, it is suggested that the specimens of *napa* housed there represent at least a part of the Ridings material as described by Edwards. From the previously mentioned four specimens, the first specimen is hereby selected as the lectotype of *napa* Edw. It is a male bearing the following labels: (1) "Napa, Colo," penned in W. H. Edwards' handwriting (2) "Collection of W. H. Edwards," letterpress in box (3) "Probable type of *Napa,* M. W. D., 1955," written in pencil by B. W. Dixon.

**Hesperia yreka** Edw. 1866 was described from "San Francisco" without reference to the number of specimens at hand. This name is represented in the Carnegie Museum by an unique

male, with one antenna, and with mesothoracic and metathoracic legs missing on one side, but with abdomen present, and otherwise in good condition. It bears the labels (1) "nemorum yreka ES. Cal[a]" and (2) "Collection W. H. Edwards." Since it is an unique, it may very well be the original type, but to prevent future misunderstandings it is hereby designated as the lectotype of *yreka* Edwards. The collector is not stated, but both Kennicott and Bischoff are known to have supplied Edwards with material from the San Francisco area.

**Pamphila verus** Edw. 1881 was described "From 1 male, 1 female, taken at Havilah, California; and in the collection of Mr. Henry Edwards." In the Carnegie Museum are two specimens, one male, one female. The female has antennae and abdomen but is missing four legs. The male has one antenna, the other being replaced by a bristle (!). All the legs are present. The abdomen is missing but I am informed by Clench that no genitalic preparation of this specimen is known to exist. This male bear the labels: (1) "6668," (2) "Havilah, Calif.," (3) "Verus So. Cal[a]," (4) "Collection of W. H. Edwards," and (5) "Butterfly Book Pl. 52, fig. 42." It is regrettable that this male is missing the abdomen, but since it is highly probable that this is the actual male upon which the description of *verus* is based, and considering that it is the specimen figured by Holland (1930), this male is hereby designated as the lectotype of *verus* Edwards.

**Pamphila milo** Edw. 1883 was described "From 1 male, from Mt. Hood, Oregon." In the Carnegie Museum there is an unique male bearing the labels: (1) "Milo W. T. Mor.," (2) "Collection W. H. Edwards," and (3) "Butterfly Book Pl. 52, Fig. 44." It is to be noted that Edwards did not mention in his description that the specimen was collected by Morrison. Except for this, it seems probable that the specimen under consideration is the original type of *milo* Edwards. For uniformity, this male is hereby designated as the lectotype of *milo* Edwards.

Specimens of **Pamphila snowi** Edw. 1877 exist in the collections of several institutions, but those in the collection of the

University of Kansas seem most plausibly to contain a specimen which may be one of those before Edwards when he penned his description. Edwards described *snowi* "From 2 males sent me by Prf. F. H. Snow, and taken by him in Colorado, at Ute Pass, while in charge of the Kansas University Expedition, 1876. No others were taken, as I am informed." Three specimens are in the collections of the University of Kansas. One is labelled "So. Arizona, Poling." A second is labelled: (1) "Near Hot Springs, N. M., 7,000 ft., July '82. F. H. Snow," (2) "15," and (3) Ochlodes snowi Scudd. det. A. W. Lindsey 1938." These two specimens are excluded from consideration since the type material came from Colorado. Moreover the first specimen is collected by Poling and the second is a female taken six years later than the types were cited as being collected. The third specimen is a male, bearing the labels: (1) "Col. Snow," (2) Pamphila snowi Edw. 523," and (3) *"Ochlodes snowi* Scudd. det. A. W. Lindsey 1938." Dr. George W. Byers of the University of Kansas tells me (*in litt.*) that none of these three specimens bears type labels nor is catalogued in the type file. Edwards mentions specifically, two type specimens. The location of the second specimen has not to date been found; it may be lost. Was it on the ill-fated Pomerania? Since this third specimen was collected by Snow, and is not definitely stated to be of another time and place than those mentioned by Edwards in his description, it is hereby designated as the lectotype of *snowi* Edwards.

It is interesting to note the determination labels *"Ochlodes snowi* Scudd. (*sic!*) det. A. W. Lindsey 1938." Byers had no information on this point. Dr. Lindsey himself informs me (*in litt.*) that he did not know he had inadvertently made this slip, until it was called to his attention.

Edwards described **Hesperia yuma** Edw. 1873 "From a single male received from Arizona by Lieut. Wheeler's expedition of 1871." This unique type no longer exists. Holland (1930, p. 379) states that the type is "mysteriously missing." This statement is most interesting in view of a part of a letter to Holland from Edwards, the substance of which has kindly been

made available to me by F. M. Brown. This letter, dated "11 Dec. '85," reads in part: "Hesp. Yuma one ♂, Lost by fire which destroyed the Express car, about 1873 or 74, & burned a lot of Arizona things I had just recd. These were in transit to Scudder. Have never seen the species since." It would appear that the elderly Holland by 1930 had forgotten this earlier note from Edwards. *Ochlodes yuma* is not mentioned in the first edition of the Butterfly Book.

Tilden (1958, pp. 151–152) has assembled a list of known specimens of *yuma* Edw., both in museums and in a number of private collections. Brown (1958, pp. 153–154) has traced the route of the Wheeler expedition and the dates at which it visited the areas of southwestern United States where the type of *yuma* Edw. might have been taken. These authors agree that the stated type locality, Arizona, seems unlikely. It is much more plausible to consider that the type specimen may have been taken in Inyo County, California. The Wheeler expedition ended in Arizona. This appears to be the most likely reason for labelling the collections of this expedition as having been taken in Arizona. As has been suggested for other names than *yuma* Edw. (e.g., the nymphalid name *apacheana* Skinner) it would seem that this procedure is at least partly in error.

Therefore it is suggested, that until further information is obtained, Inyo County, California, be regarded as the type locality of *yuma* Edw. The reasons for this suggestion are cogent (see Brown, *op. cit.*). Only if incontrovertible evidence, favoring Arizona as the type locality, should be brought forward, would it seem desirable to set aside this change in type locality.

A specimen of the fall brood of *Ochlodes yuma,* taken in the general vicinity of where the Wheeler Expedition crossed the area, has been selected. It is a male, and differs from the description of *yuma* Edw. only in having dark wing borders. The lost type was evidently a worn specimen. Fresh specimens of *yuma* nearly always have narrow dark borders. This specimen bears the labels "Darwin Falls, Inyo Co., Calif., IX.10.60," "J. W. Tilden Collector" and "Neotype of yuma Edw, desig. J. W. Tilden 1960." This specimen is hereby designated as the

neotype of *yuma* Edw. to replace the original type believed to have been destroyed by fire in 1873 or 1874. This specimen will be deposited in the Carnegie Museum, Pittsburgh, Penna.

The types of **Pamphila scudderi** Skinner 1899 are in the collections of the Academy of Natural Sciences at Philadelphia, Pennsylvania. Mr. Rehn has informed me that the labels are in longhand without indication of collector and that the specimens are in perfect condition. Gillham and Ehrlich (1954) state that the male holotype is #7097. The labels bear the data: "White R., Col., July 24–Aug. 13." The original description says: "Described from a pair sent to me by Dr. S. H. Scudder who has a good series in his collection. They were taken on the White River. . . ."

It is not certain by whom these specimens were marked as types. Nothing in Skinner's description states that he did so. It is possible that it was done by R. C. Williams, Jr., who worked at that institution. Search of the literature does not clear up this point, and Mr. Rehn states that he does not know. It is possible that the citation has never formally been published, or that I have failed to find it. However, there seems to be no reason to doubt the authenticity of the male holotype of *scudderi*, and the present author agrees that these specimens are the types of *scudderi* Skin.

The names proposed by Ploetz present a very difficult problem. Correspondence with Dr. W. Forster, of the Zoologische Sammlung des Bayerischen Staates, and with Dr. H. J. Hannemann, of the Humboldt-Universität zu Berlin, have confirmed the generally suspected conditions surrounding the published names of Ploetz. In many cases no type specimens were designated. In other cases, the "types" were divided and sent to different institutions. Many times water-color plates (Aquarellen) were made of the type specimens. These plates were in some cases used in Seitz' Macrolepidoptera of the World. These plates now exist in several museums of the world, not only in Germany, but also in the British Museum (Natural History), London, England, and in the Museum of Rio de Janeiro, Brasil. So far as can be ascertained, the type specimens of the two

Ploetz names with which this article is concerned, are not to be found.

**Francisca** Ploetz 1883, by the nature of the description and by the type locality ("Californien, Mexico"), indicates a synonym of *sylvanoides* Boisduval 1852. Since the type material of *francisca* Ploetz has so far remained unlocated (if indeed it exists), it seems necessary on the basis of the description to retain the name *francisca* for consideration among those of North American insects. The case for the name **amanda** Ploetz 1883 is less clear. This name was added to those of the North American members of the genus *Ochlodes* by Evans (*tom. cit.*, p. 343, 1955). Bell (1938) considers *amanda* Ploetz a questionable synonym of *Hesperia pawnee* (Dodge). Most other American authors seem to have ignored the name. Evans' basis is a copy of Ploetz' MS. figure in the British Museum (Natural History). On the basis of the general lack of agreement as to what Ploetz really had before him when he proposed the name *amanda*, perhaps as good a disposition of the name as any is to consider it a *nomen dubium*. This course is here adopted.

Except for the names proposed by Ploetz and concerning which there is some doubt as to their disposition, there has been no attempt in this paper to decide on the taxonomic validity of any of the North American names in the genus *Ochlodes*. This phase of the study is now under consideration but so far the results are inconclusive.

The author gratefully acknowledges the help of the following individuals and the institutions they represent: Dr. F. Martin Brown, Fountain Valley School, Colorado Springs, Colo.; Dr. George F. Byers, University of Kansas, Lawrence, Kan.; Dr. Harry K. Clench, Carnegie Museum, Pittsburgh, Penna.; Dr. J. P. Darlington, Jr., Museum of Comparative Zoology, Cambridge, Mass.; B. W. Dixon, Pittsburgh, Penna.; the late Brigadier W. H. Evans, British Museum (Natural History), London, England; Mr. W. D. Field, Smithsonian Institution, Washington, D. C.; Dr. W. Forster, Zoologische Sammlung des Bayerischen Staates, München, Germany; Dr. H. J. Hannemann, Humboldt-Universität, Berlin, Germany; Dr. Frederick

H. Rindge, American Museum of Natural History, New York, N. Y.; Mr. James A. G. Rehn, Academy of Natural Sciences, Philadelphia, Penna. Each has contributed information that has proven valuable. Special thanks are due to Dr. A. W. Lindsey, Emeritus, Denison University, Granville, Ohio, for his many kindnesses over the years.

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## The Vienna Congress

For the eleventh time within this century the entomologists of the world have assembled in conference to discuss their research and problems, and to meet their world-wide colleagues. This time the meeting was in Vienna, a city classical to adherents of our science, because of the illustrious entomologists of the past century who worked and published there. The growing importance of these congresses is shown by the large attendance, which this time almost reached the two thousand mark. The unusually large number of North Americans in attendance was certainly due to the liberality of our National Science Foundation and National Institute of Health in awarding forty-one travel grants.

This Congress was held under the presidency of Prof. Karl E. Schedle, noted forest-entomologist, while Dr. Max Beier of the Natural History Museum was Secretary General.

The scientific meetings were divided between the Natural History Museum—the famed Naturhistorisches Hofmuseum of former years—and the mid-Victorian building of the University, which, with its high ceilings and great marble staircases, was quite formidable to those who had to climb to lecture rooms located up under the roof. Two other buildings were also used to some extent.

The most unusual feature of this congress was the great number of symposia, seventeen in all. While these symposia dealt with restricted topics, they did not, in general, deal with selected aspects of a particular topic, so could possibly better have been distributed under section headings. As there were only six days of scientific sessions, the symposia had to be held concurrently, not only with the section meetings, but with each other. Under the arrangement followed, identical subject matter was sometimes simultaneously dealt with in both symposium and section, as for example, all day Monday, the symposium on chemistry of insects was running concurrently with the section on physiology (morning, nourishment, and afternoon, histochemistry).

In addition to the symposia, there were twenty-five sections and subsections running more or less simultaneously with each other and, as already noted, with the symposia. As these were held in four buildings somewhat remote from one another, the members who wished to pick and choose particular papers to hear, were decidedly frustrated. Matters were made worse by the fact that some members did not respond when their papers were called.

## I. The Subject Matter

The scope of topics dealt with, both in symposia and sections, will be apparent from what follows:

### A. Systematic and General Entomology

*Fundamental problems of systematics and nomenclature,* Symposium No. 17, was under the leadership of Professor E. Martini of Hamburg, who was the president of the Berlin Congress in 1938. There were thirteen papers that, as could have been anticipated, elicited long and vigorous discussion.

*General systematic entomology*—Section 1. Mr. H. J. Stammer gave a paper on "New paths in insects systematics," Dr. R. R. Sokol of the University of Kansas on, "Fundamentals of quantitative systematics," Dr. A. Nielsen of Copenhagen gave "Some thoughts on arthropod phylogeny," Mr. J. P. Cancelo da Fonseca of England gave a critical essay on "The evolution of insects," and Prof. R. M. Bohart, of the University of California, gave a paper on "The art and practice of key-making."

*Taxonomy of entomophagous insects,* a symposium under the leadership of Prof. Charles Ferrière, of Geneva, included six papers. A notable one by Dr. Henry Townes, of Michigan, outlined the results of many years research toward a more natural classification of the Ichneumonidae.

*Paleontology,* was under Prof. F. E. Zeuner of London, who reported on Triassic insects from the Molteno beds of southern Africa. Among other papers was one by Prof. Rohdendorf of

Moscow, on paleontological research in Russia, which, as everyone knows, has been of great significance.

*Hemimetabola*—Dr. V. M. Dirsch of London and Dr. A. G. Sharov of Moscow, both presented papers on the classification of orthopterous insects, while Mr. D. Lester of London spoke on the higher taxonomy of Heteroptera. There were twenty-three papers.

Three of the most primitive orders of winged insects were each the subject of a special symposium, they could as well have been made subsections of Section I. *Ephemeroptera;* there were seven papers on taxonomy, biology and distribution; *Plecoptera;* there were six papers on taxonomy, anatomy, and behavior, including an important one by Dr. Illies of Plön in Germany on the suborders and families; *Odonata;* this consisted of eight papers. One, on family classification, was by Prof. B. E. Montgomery of Lafayette, Indiana.

*Coleoptera.*—Among the eighteen papers was one of "Progress toward a classification of Rhynchophora" by Dr. W. H. Anderson of Washington.

*Diptera.*—Among nineteen papers two of the more general ones on classification were by Prof. Rohdendorf of Moscow, and by Dr. Curtis W. Sabrosky of Washington. A phylogenetic system of syrphoids based on genitalia and larvae was offered by Mr. S. Glumac.

*Lepidoptera.*—Included among nine papers, was one on the classification of Tortricidae by A. Diakanoff of Leiden, and one on a generic classification of the Papilionidae by K. H. Wilson of the University of Kansas.

*Hymenoptera.*—There were eleven papers. Dr. J. R. T. Short, of Aberdeen, presented "The taxonomy of Ichneumonidae from the standpoint of larval characters." (*Cf.* Dr. Townes' paper on the classification of that family in one of the symposia.)

*Arachnida,* had twelve papers.

### B. Geographical Distribution

Section 4 had fifty-five papers, a very interesting program.

### C. Behavior and Social Insects

Section 5, had twenty-two papers.

*Migration,* a symposium, was under the leadership of Dr. B. P. Uvarov of the British Museum, authority on migrating locusts. There were twenty-three papers on this popular topic, and they dealt with aerial dispersal and many other phases of the subject in a wide variety of insects, from plant-lice to butterflies.

*Host-seeking habits of mosquitoes,* had seven papers.

### D. Ecology

*Soil insects,* a symposium that was led by Professor Kühnelt of Vienna; eleven papers.

*Insects of great cities.*—This symposium had twelve papers several of which dealt with applied entomology.

### E. Anatomy, Embryology, Cytology, and Genetics

*Anatomy and embryology.*—This section had thirty-nine papers; *Genetics and Cytology,* had fifteen papers.

### F. Physiology

Section 6, which also included experimental ecology, was led by Dr. Kühnelt and listed sixty-six papers; one of these on a somewhat unusual topic, by Dr. T. R. E. Southwood of England, was entitled "The evolution of the insect host-tree relationship—a new approach."

*Acoustics,* a symposium. The ten papers included a review of progress and problems by the leader, Dr. P. T. Haskell of London.

*Chemistry,* a symposium, comprised forty-nine ten minute papers on a wide range of subjects.

*Chemical defensive methods.*—A symposium led by Prof. Thomas Eisner of Cornell University, with eight papers, some on resistance to insecticides.

## G. Medical and Veterinary Entomology

Section 10 had seventy-two papers, more than in any other group. I will mention two papers: "The use of external characters to age-grade adult mosquitoes" by Dr. Philip S. Corbett of Entebbe, Uganda (a field of entomology that I have not previously seen touched upon) and "The ecological classification of synanthropic flies of the families Muscidae and Calliphoridae" by V. P. Darbeneva-Ukhova. There was also a film showing association of a mosquito with oriental ants (*Crematogaster*).

*Acarina.*—A symposium with eleven papers.

*Arthropods in relation to blood-parasites, especially those of wild animals.*—A symposium with twelve papers led by Prof. A. Murray Fallis of Toronto.

## H. Applied Entomology (non medical)

*Agricultural entomology.*—Two of the fifty-six papers were "Status of the idea that weather can control insect populations," by M. E. Solomon of England, and "Recent advances in the study of insect resistance in crop-plants of North America" by Prof. R. J. Painter of Kansas State Agricultural College.

Thirteen other sections, subsections and symposia were devoted to various phases of agricultural and forest entomology. There were in all 212 papers on their programs.

## I. Conservation

Section 14 had the least number of papers, just two; one was of local significance, the other, by Dr. H. W. Miles of Wye, England, was entitled "Some entomological aspects of nature conservation."

## J. Films

On four afternoons and one morning, programs of excellent films (eleven on behavior, nine on control, eight on expeditions, and eight on miscellaneous topics) afforded both pleasant and instructive relief from the monotony of listening to too many papers.

## II. Excursions

By invitation of the Burgomeister, daily opportunity was afforded to see the "New Vienna" by autobus. Afternoon excursions to points of interest were made available to all ladies of the Congress. There was one all-day excursion to points of technical interest for each of four Sections: Agriculture, Stored Products, Control Methods, and Forest-Entomology.

On Saturday and Sunday a choice of delightful all-day excursions was offered to such famed points of interest as the Wachau and the Monastery at Melk, the Rax, Petronell and the Caruntium Museum, and the Neusiedler See.

Those who wished to prolong their stay for post-congress field work had the choice of three additional excursions by autobus; one of three days for agriculturalists and two longer ones (nine and twelve days) for alpine collectors. I took no part in these excursions, therefore can give no report on how the participants fared, or even that there were enough registrants to ensure that they were all given.

## III. Social Events

As always at these congresses, the most pleasant feature was the evening social gatherings, when one has opportunity to meet old friends, leisure for conversation with them, and perhaps chance to meet, in the flesh, celebrities who have hitherto been known only from their published articles. There were two such evenings at the Congress, to which everyone was invited, each truly memorable; the first was a general reception given by the Burgomeister in the great Festhall of the Rathaus, the second was the closing reception given by the Organization Committee in the Museum.

Also, there was an affair for members of the Lepidopterist's Society, one for invited Coleopterists by the Museum "Dr. George Frey" in Munich, and two others for delegates invited, respectively, by the Minister of Agriculture and Forestry, and by the Minister of Education.

On the evening of the closing day, opportunity was given to visit a "Heurige" in Grinzing. These are held in local establishments, famous to the Viennese; they celebrate the coming of the season's new wine, and when it is ready a pine branch, known irreverently as "The finger of God" is hung before the door.

## IV. The Close

At the closing session, it was announced that the next Congress will be held in London in 1964, that Dr. Curtis W. Sabrosky had been elected to the Permanent Committee of the Congresses (in the place of this writer, resigned) and that Dr. E. M. Hering of Berlin had been an Honorary Member (there are now two honorary members from the United States * and one each from Brazil, France, Germany, Austria, and Japan).

As we scattered far and wide, I think all congressionists must have left with the feeling, not only of having had a most enjoyable and professionally profitable week, but that here had been a congress that fully measured up to the standards of congresses in the past, as would have been expected from our hosts, the Austrians; perhaps it has set new standards! Surely each and every one of us felt profound gratitude for what had been done both for us and as a stimulus to our science.

J. Chester Bradley

* Dr. O. A. Johannsen, and Dr. J. Chester Bradley.—Editor.

# Some Noteworthy Dragonfly Records from Utah (Odonata: Anisoptera)

By R. Jean Musser,[1] University of Utah, Salt Lake City

The only published records of the Odonata fauna of Utah are found in the broad, general works of Needham and Heywood (1929), Needham and Westfall (1955), and in a few checklists and general reports. The only other published Odonata records of Utah are by Brown (1934), G. G. Musser (1959) and R. J. Musser (1960).

Two southern species, *Oplonaeschna armata* Hagen and *Brechmorhoga mendax* Hagen, which extend into Utah from Mexico and Central America, are herewith reported as new distributional records for the state.

One nymphal exuvia and one male adult *Oplonaeschna armata* Hagen were taken at Weeping Rock in Zion Canyon (elevation 5,000 ft.), Washington Co., Utah near a small stream formed by water seeping between bedding planes of a Navajo Sandstone cliff. Here the water falls from a sandstone arch, causing a fine spray which continually moistens the immediate vicinity. The small stream is subject to flash flooding when rain from thunderstorms runs off the surrounding sandstone cliffs. This distinctive habitat appears to be very similar to that from which Tinkham (1949) collected this species in Arizona. Until the exuvia and adult were taken in Utah, Tinkham's specimens were the only representatives of this species to be reported in the United States. The site of collection in Zion Canyon represents a 400 mile northward range extension of *O. armata*.

The other southern species for which Utah now represents the northernmost limit is *Brechmorhoga mendax* Hagen. Three last instar nymphs were collected with a hand screen in the Santa Clara River (elevation 5,500 ft.) at Veyo, Washington Co., Utah. The stream here is approximately 4 feet wide and 1½ feet deep. Warm springs feed its moderately fast current.

[1] Summer Graduate Teaching Fellow, N.S.F., Graduate Research Fellow, Department of Zoology and Entomology.

At intervals the stream drops from a gravel and rock bottom overlaid with algae into pools with a sand and silt base.

*Brechmorhoga mendax* was found in close association with *Progomphus borealis* McLachlan and *Erpetogomphus compositus* Hagen in the shallow and riffled edges of the Santa Clara River. The three specimens of *B. mendax* were found in a two foot square area although a much larger section of the stream was exhaustively collected. The stream bottom along the course appears identical to the collecting site of *B. mendax,* and since no water temperatures were taken, there is no available data which will explain failure to find it elsewhere.

The dragonfly fauna of southwestern Utah would seem to support the hypothesis that this area marks the route for the northern dispersal of some southern species of aquatic insects, as well as more southerly distributed plants and animals.

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## Review

FOREST AND SHADE TREE ENTOMOLOGY. By Roger F. Anderson. Pp. vii + 428, ill. John Wiley and Sons, Inc., New York, 1960. Price, $8.50.

This is intended as a text for students of forestry, and as a manual for identification of species by keys, pictures, and descriptions of insects and their work. Section I (92 pages) has three brief chapters on anatomy, physiology, and development, on classification, and on ecology; also chapters on the principles and methods of control. In Section II the individual species are treated, in seven chapters, depending on whether they eat the leaves, the inner bark, wood, etc. Species are described in detail and literature references are given. There are over 300 fine photographs, virtually all original; and numerous practical keys throughout.

This reviewer would prefer an approach that places the *insects* first (not the tree), and studies them order by order. This, he believes, will arouse more interest in the student so that he will enjoy his entomology and come really to understand insect life. He will then not only recognize the common pests, but will be entomologically educated and professionally equipped to act with good entomological sense, and also to recognize new situations that may arise. The usual college student takes rather well to entomology, and could be told, frankly, that forest entomology deals with the insects of importance in forestry. But here, the very first words state (p. 3, in caps) that it "deals with the protection of trees . . ." and then, a little farther along, the news is broken gently that it will be necessary to learn something of insects—almost as if this were an unfortunate circumstance, as if the entomologist were somehow apologizing. Is this approach, common to economic texts of past decades, really still necessary?

As to the book, the first three chapters especially suffer from lack of critical reading, and lack of ordinary care in editing and proof reading for which the publisher is largely responsible.—R. G. SCHMIEDER.

# EXCHANGES

**This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.**

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

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**Butterflies.** Wish to exchange specimens for Japanese species. Please write to Ichiro Nakamura (Boy, age 16), 26 Aza-Nichiyama Obayashi Takarazuka-shi, Hyogo-Ken, Japan.

**Phasmidae** of nearctic area desired alive. Purchase or trade, drawing on large stock of major orders, worldwide. Domminck J. Pirone, Dept. Entomology, Cornell University, Ithaca, N. Y.

**Nitidulidae and Rhizophagidae** wanted in exchange for European beetles of all families. O. Marek, Zămberk 797, Czechoslovakia.

**Wanted and Needed.** We are compiling a history of entomology, and particularly, at present, of the amateur insect clubs that flourished 50 to 75 years ago. Will you who have knowledge of such early clubs or societies advise me, giving facts on the time of existence, members, etc., which you may have. J. J. Davis, Dept. of Entomology, Purdue University, Lafayette, Indiana.

**Cockroaches (Blattoidea)** of Japan, Okinawa, Formosa (Taiwan), and the Philippines are being studied in cooperation with Dr. K. Princis. Loans of specimens from that area are desired. A. B. Gurney, U. S. National Museum, Washington 25, D. C.

**Orthoptera. Gryllinae** (except domestic sp.) and **Pyrgomorphinae** of the world wanted in any quantity for work in morphology, taxonomy, cytology, and experimental biology; dry, or in fluid, or living. Write D. K. Kevan and R. S. Bigelow, Dept. of Entomology, McGill University, Macdonald College, Quebec, Canada.

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